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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

THOMPSON et al

Atty. Ref.: 36-1951

Serial No. 10/560,615

TC/A.U.: 3624

Filed: December 14, 2005

Examiner:

For: NEGOTIATION SYSTEM

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May 4, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Attention is directed to the attached PCT and GB Search Reports in a counterpart of this application and to a copy of each non-US patent document newly cited therein and/or otherwise known to the inventors. A Form PTO-1449 is also attached.

Official consideration and citation of all identified documents is requested.

Zeus (http://labs.bt.com/projects/agents/zeus/) is an open source agent development tool kit that was created at BT in the late 1990's and early 2000's as part of the Midas and Agentcities research projects as a platform for the setting of negotiation episodes.

The description of goods and services offered by electronic agents to one another is also an area of great activity. Two significant groups have been working on this area. The WS-I have proposed a common web service profile language which describes the service in terms of how to invoke it. The DARPAWeb Service group have developed DAML-S which is an XML based service description language. DAML-S describes the service simply in terms of what it does. Applicant's present invention takes a different view by developing a method for describing the behaviors expected of participants in an auction, and an engine that can interpret these descriptions and act on them. In particular, applicants have developed an exemplary system wherein:

- Descriptions are in terms of the phases of activity in an interaction. For example, it is possible to specify a pre-qualification phase, a phase in which the characteristics of the good are negotiated and a phrase in which the price of the good is negotiated.
- The outcomes of the phases of the negotiation can be tied together in a way that can be interpreted by a program; it is possible to specify a concept like "the price agreed in phase s2 will be the only price that will be legal in phase s3". This is significant because it constrains the size of the space that agents must reason over when composing bids at each phase. Importantly this constraint cannot only be applied going forward in the auction (that is to say that a constraint that has been specified for a previous phase applies to the reasoning to be used in this phase) but also in previous phases as well. In the example above agents that interpret the service description will be able to reason that since price will be constrained in subsequent phases in phase s1 other considerations (quality, time of delivery, support and servicing) are subordinate.

Applicant has identified six references could be retrieved using the keywords "negotiation and description".

Of these

- EP 1161038 & EP 1158445 appear to refer to mechanical negotiation for voice over IP connections
- WO 0221789 and US 2002/029201 are concerned with specifying privacy constraints in an interaction
- US 6,055,519 refers to a canonical negotiation system
- US 6,347,307 describes a way of stating the type of interaction to be conducted. However it uses a taxonomy/ontology (FinXML) which specifies interactions such as "spot", "InterestRateFixedFloatSwap" whereas applicant's system uses a componentized characterization such as describing the interaction in terms of a number of phases, the characteristics of the phases and the constraints between the phases and on the logical description of the overall outcome of the interaction.

1. CMU (DARPA) have implemented a language called DAML-S. DAML-S does not have a descriptive ontology for interactions, but does have a process model which can be used to explicitly describe protocols.

2. University of Southampton and HP Labs have implemented a software framework which does utilize an ontology for negotiation. However, applicant's exemplary system uses a different descriptive method which decomposes the steps of negotiation more fully. In HP's system of rules applicant's system can place more emphasis on lifecycle rules. HP only identify terminal rules, whereas applicant's can describe transitions in the negotiation process. Applicant's exemplary system also can have constraints between the phases of the negotiation.

3. University of Liverpool and HP Labs have done work similar to the work above. However, there is a difference in that the object of the negotiation is discussed. However, the object is not related to the negotiation state.

4. FIPA, RosettaNet and ebXML initiatives define a number of different negotiation protocols by an explicit, informal description. See www.fipa.org for examples.

5. In previous work, applicant has developed the line of reasoning described by the University of Liverpool, University of Southampton and HP Labs into a pattern language which combines some of the formal and informal characteristics of protocol description systems. This is mainly intended as a grounded documentation tool.

Respectfully submitted,

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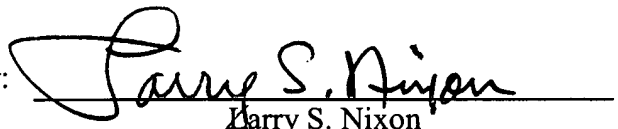
By: 

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INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

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36-1951	10/560,615
APPLICANT	
THOMPSON et al	
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December 14, 2005	3624

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6401080 B1	06/2002	Bigus et al.			
		6347307 B1	02/2002	Sandhu et al.			
		6055519	04/2000	Kennedy et al.			
		2002/0029201 A1	03/2002	Barzilai et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
		WO 02/03297 A2	01/2002	WIPO				
		WO 02/21789 A2	03/2002	WIPO				
		1158445 A1	11/2001	Europe				
		1161038 A2	12/2001	Europe				

OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

		Aknine, "E-Commerce and Web Technologies 3rd International Conference, EC-Web 2002 Proceedings", published 2002, Springer Verlag, see page 17, section 1, page 18, section 3.1 and page 20, section 3.2.1
		Carbo et al., "Proceedings of the IASTED International Conference Artificial Intelligence and Applications, AIA'01", published 2001, ACTA Press, see abstract, page 389, section 3 and Figure 1
		Robinson et al., "Communications of the ACM, Vol. 41, No. 5, May 1998, "Supporting the Negotiation Life Cycle", pages 95-102, see Figures 1 and 2, see page 96 righthand column and page 102 righthand column
		David et al., "Bidders Strategy For Multi-Attribute Sequential English Auction with a Deadline", AAMAS 03, No. ACM-1-58113-683-8/03/0007, 14 July 2002, pages 457-464, XP002302633
		Becker et al., "Transition-Independent Decentralized Markov Decision Processes", AAMAS 03, 14 July 2003, 18 July 2003, pages 41-48, XP002302634
		Bartolini et al., "Architecting for Reuse: A Software Framework for Automated Negotiation", HP Laboratories, Filton Road, BS34 8QZ, Bristol, UK, 2002
		Fonseca et al., "Towards an Agent Negotiation Pattern Language", UC Santa Cruz/BTexactTechnologies, Baskin Engineering Bldg, Santa Cruz, CA and BTexact Technologies, Orion Building, 1st Floor, pp12 Adastral Park, Martlesham Heath, IP5 3RE,simon.2.thompson@bt.com, 2002
		Ankolekar et al., "DAML-S Web Service Description for the Semantic Web", BBN Technologies, Carnegie Mellon University, Nokia Research Center, SRI International, Stanford University, Yale University, 2002

*Examiner		Date Considered	

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.